

# The American FERTILIZER

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1850—1947

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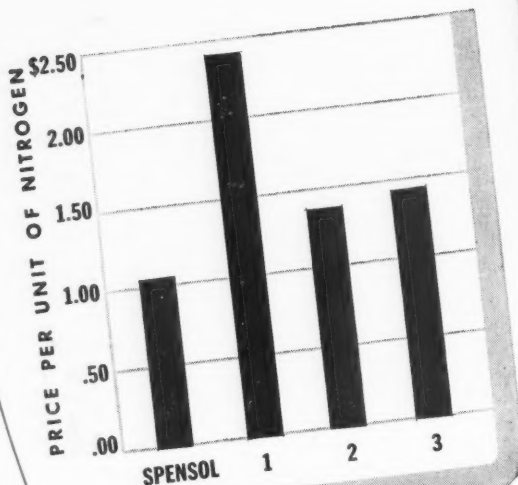
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- ✓ More Nitrogen Per Dollar
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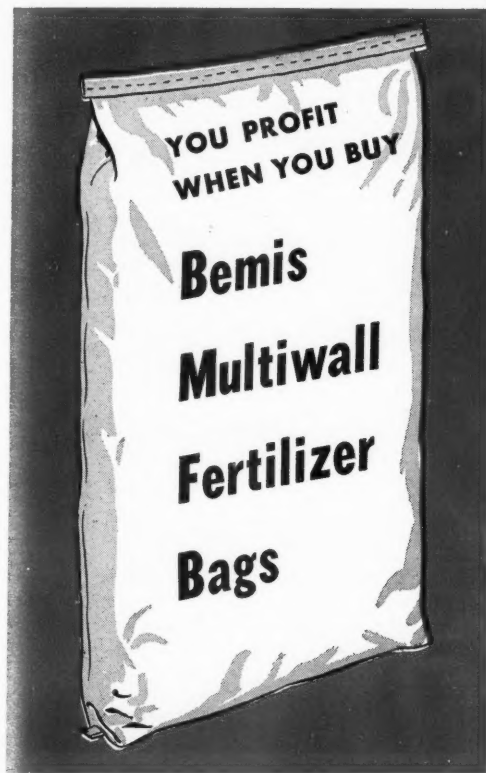
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Manufacturers of HI-NITROGEN Agricultural Products

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Cayce, S. C.	Henderson, N. C.	Savannah, Ga.
Chambly Canton, Quebec, Can.	Montgomery, Ala.	Searsport, Maine
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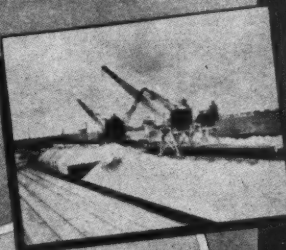
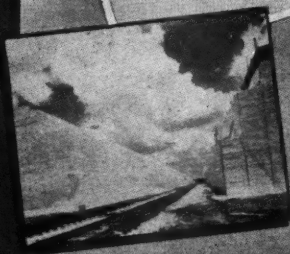





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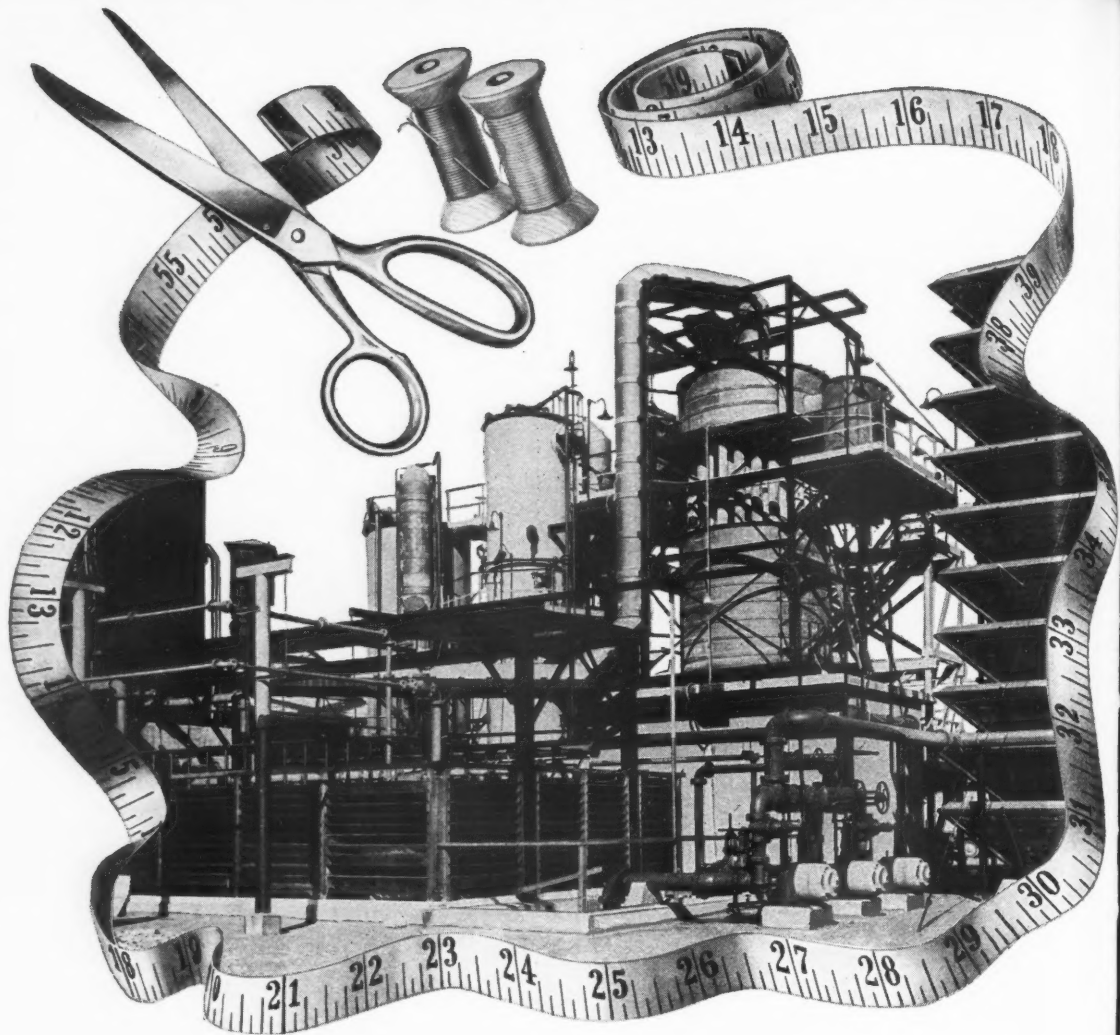
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# The American FERTILIZER

Vol. 106

MAY 31, 1947

No. 11

## The Function of the States in Collecting and Analyzing Fertilizers\*

By J. F. FUDGE<sup>1</sup>

The collection and analysis of fertilizer statistics is an important field in which we are all vitally interested but in which most work to date has been done by groups such as the United States Department of Agriculture, The National Fertilizer Association, the American Plant Food Council, and others on a national rather than a State scale. Reports on the basis of the individual states have improved greatly during the last few years, but there is still need for improvement in the statistics published and for a much greater uniformity in the coverage of such statistics.

A brief history of statistics on the consumption of different kinds of fertilizers is necessary for an understanding of some of the present problems.

New Jersey was probably the first State to collect and publish annual statistics on consumption of different kinds of fertilizer sold within its borders. The first year for which such figures were published is 1882 and the next is 1884. After that figures were available in detail annually until 1899. Since then, the tonnages of mixed fertilizers and materials have been published on a semi-annual basis. Reports from Indiana have been published in more and more detail since 1883. Texas be-

gan such reports in 1902. From time to time additional States have collected and published such data, until 36 States made some report in 1945.

The State reports have not been of as much value in arriving at national statistics as they should have been because these statistics have been collected and analyzed in almost as many different bases as there were States making the reports. Within recent years, various State officials have made changes in the manner of collecting and publishing these reports which have brought about a greater uniformity, but there is still need for improvement. The most important points to be considered are the period of time covered, the way in which grades and kinds of fertilizers are classified, and the method used for the calculation of the plant-food tonnage. For 1945, fertilizer tonnage statistics were published for 36 States. These States are thought to account for about 90 per cent of the total tonnage sold, but the reports differed in many important particulars.

A classification of these reports according to the period covered is as follows:

Period covered	Number of States
Monthly . . . . .	1
Quarterly . . . . .	1
Semi-annual (but different dates) . .	14
Annual . . . . .	7
Fiscal year ending 6/30 . . . . .	11
Fiscal year ending 8/31 . . . . .	2

\* A paper presented at the Fertilizer Conference held at Beltsville, Md., January 8 and 9, 1947.

<sup>1</sup> State Chemist of Texas and Chief, Division of Chemistry, Texas Agricultural Experiment Station, College Station, Texas.

This great variation in important details makes it impossible for those interested in the compilation of fertilizer data on a national basis to take the State reports and arrive at accurate national data. One of the most important contributions which the Association of American Fertilizer Control Officials can make on a national basis is the development of State reports of sufficient detail and uniformity that the State reports can be assembled and provide the basis for national summaries.

#### **The Function of the State Control Official**

The responsibility for the collection and analysis of fertilizer data should be placed primarily with the State control official for several reasons:

1. The local control official is, or should be, in possession of a mass of detailed information upon which both State and national analyses should be based.

2. Certain statistics and analyses are of both State and national importance. Any analysis of importance from a national point of view is of even greater importance from a State point of view. Many details in such analyses which may be of great importance in the proper interpretation of the fertilizer picture for a given State must of necessity be omitted from a national summary. Such statistics should, therefore, be of sufficient detail and so organized that they will answer pertinent questions pertaining to State problems and will also serve as the basis for national analyses.

3. Many analyses may be of considerable importance from the aspect of a given State and still not be pertinent to a national summary.

4. If the State report is properly made, all of the information needed by a person making a national summary will be presented in somewhat greater detail than is required. All that is required in such a case is to eliminate the unnecessary details from each State report and compile the necessary information in the national summary. However, for such a purpose, it is essential that the several State reports be uniform with respect to certain important details.

I believe that this group should carefully consider what details are necessary, and how they should be presented. In order to form a basis for such discussion, I shall review some of the analyses which I believe should be made. For purposes of illustration, I shall use data for Texas, but they should be equally applicable in other States. The statistics col-

lected may be analyzed in a number of ways in order to answer different questions.

#### **Total Tonnage**

Total tonnage figures are essential because it is from total tonnage that most of us derive the funds necessary to finance control. These give some information as to the use of fertilizer in the State. Total tonnages in Texas have increased in the last four years from about 150,000 tons in 1942-1943 to over 300,000 tons in 1945-1946, or practically doubled. However, this figure gives no information about the use of different kinds of fertilizers.

#### **Tonnages of Grades and Materials**

The analysis of total tonnage on the basis of tonnages of individual grades and materials used is by far the most important analysis for a number of reasons.

It is the only basis from which consumption of nitrogen, available phosphoric acid, and potash can be calculated. In order to be of maximum benefit, this analysis should be complete. Tonnages should be given for each and every grade and material. Tonnages of the same material but of different composition should be given separately. For example, tonnages of muriate of potash, 50 per cent, and muriate of potash, 60 per cent, should be listed separately. Tonnages of every product should be given, even though the amount used be small. One of the most important recommendations of the Subcommittee on Fertilizer Grades and Ratios of the American Society of Agronomy, in a report issued in 1943 giving a summary of the State fertilizer tonnage reports available in 1942, was that the tonnage of every grade of fertilizer should be given separately. A decision should be made by the Association as to whether the consumption should be calculated from the guaranteed analysis or from the average analysis found in official samples. Both systems have been used by different States without any statement as to which system was used, so that it is often necessary to recalculate the data in order to determine this important point. In the interest of greater simplicity in calculation, I think that the better basis is that on guaranteed analysis. For purposes of the analysis, this basis should be as accurate as the averages found on analysis. In order to be of value in any national summary, all State reports should cover the same calendar period. The Subcommittee of Fertilizer Grades and Ratios recommended that the figures be given separately for each half year, starting January 1st and July 1st. The same recommendation has been made in the Model Fertilizer Law.



This type of analysis gives information concerning the ratio between mixed goods and materials consumed. This point is of primary importance to fertilizer manufacturers in planning their future operations. Materials sold in Texas in 1942-1943 accounted for 13 per cent of the total tonnage, while in 1945-1946 the figure was 34 per cent. Practically all of these materials were those carrying nitrogen or phosphoric acid; an average of less than 100 tons of potash in materials has been sold annually in Texas during that period.

This analysis, when properly made over a period of years, gives much valuable information concerning important trends in the consumption of fertilizer. An example of this is given in the data for Texas in Table 1.

TABLE 1.  
FERTILIZER MATERIALS USED IN TEXAS

Year	In mixed goods	In materials Nitrogen, tons N	Average percentage in total
1942-1943....	4,431	1,826	4.3
1943-1944....	7,250	3,174	5.6
1944-1945....	7,764	4,812	6.0
1945-1946....	10,049	9,500	7.4
Phosphoric acid, tons A. P. A.			
1942-1943....	14,800	2,080	11.5
1943-1944....	16,860	3,963	11.3
1944-1945....	16,918	7,000	11.5
1945-1946....	19,456	12,196	12.0
Potash, tons soluble K <sub>2</sub> O			
1942-1943....	6,782	43	4.7
1943-1944....	6,570	138	3.6
1944-1945....	6,387	74	3.1
1945-1946....	9,048	129	3.5

In mixed goods sold during the last four years the tonnage of nitrogen has more than doubled, while available phosphoric acid and potash have increased only about 30 per cent. In materials, nitrogen increased over four times and available phosphoric acid increased about six times; practically no potash in materials has been available. In 1942-1943, nitrogen in materials represented only 29 per cent of the total nitrogen used, while four years later, the figure was 49 per cent. Corresponding figures for available phosphoric acid were 12 per cent and 38 per cent.

This type of analysis also gives manufacturers data as to which grades are being sold in greatest volume. It is also of value in arriving at the grades to be included in the approved grade list. Although 11 grades of mixed goods were approved for sale in Texas last year, 4-12-4 represented 60 per cent and 5-10-5 represented 25 per cent of the total mixed goods sold. Four grades (including 6-8-4 and 4-8-8) accounted for over 91 per

cent. In interpreting any such analysis, however, it is necessary to consider all factors involved. The extreme shortage of nitrogen and potash materials accounted for a large part of the manufacture of 4-12-4, even though it is generally recognized that a 5-10-5 or an 8-8-8 is a better fertilizer on much of our soil.

In connection with this type of analysis, the Association of American Fertilizer Control Officials should take action to promote a greater uniformity with respect to what constitutes a material. In a number of States, the list of grades of mixed fertilizer is fixed by regulation or law, while the list of materials is not definitely set. Some fertilizer products are on the boundary line between mixed goods and fertilizer materials; some States consider such products as mixed goods and others consider them materials. For example, a number of products containing nitrogen and phosphoric acid are being marketed. Is a 16-20-0, a 13-39-0 or an 11-48-0 a material or a grade of mixed goods? A 16-20-0 or 13-39-0 is or may be a mixture of ammonium phosphate and ammonium sulphate while an 11-48-0 is an ammonium phosphate: Is one a grade of mixed goods and the other a material? What criteria should be used in deciding whether such a product is a material or a grade of mixed goods? Should limitation extend to materials as well as to mixed goods?

As stated above, the analysis of fertilizer data based on tonnages of different grade and materials is the most important analysis which can be made. If done properly, giving the tonnage of each and every product on a uniform time basis for each and every State, the reports contain all of the information necessary for national summaries. It is the function of the State official to publish a complete analysis of this type. A number of other analyses may not be of national importance and yet be of great value to manufacturers, agricultural specialists and others in a given State.

#### Analysis by Counties

Perhaps the most important analysis State but not of national interest is the tonnage of fertilizers used in different counties in the State. This is now being done in a number of States which use large amounts of fertilizer. Many problems of local interest can be answered by such an analysis. The analysis by grades and materials tells what fertilizer is being used; the analysis by counties tells where it is being used. Different parts of a State vary greatly in the usage of fertilizers, because of profound differences in crops, soils,

(Continued on page 28)



## Woodrum Advocates Free Enterprise for Agriculture

Clifton A. Woodrum, president of the American Plant Food Council, told the Savannah Chamber of Commerce on May 20th that "the American farmer does not wish to be, in any sense of the word, a ward of his Government" and "like business men in general, he wants only a fair square chance in a free, competitive economy."

"Today our national welfare is largely dependent upon the progress and prosperity of agriculture," he said. "The American farmer occupies a position of great responsibility in our national economy, but the farmer also is a businessman and we must treat him as such. Farmers know what is good for other American business is good for agriculture. As we fight to protect our system of private enterprise, let us not forget that the American farmer is one of the staunchest supporters of this system."

Mr. Woodrum, who served 23 years in Congress as a Representative from Virginia before resigning to assume his present position, praised the U. S. D. A. "which has spared no expense in helping the farmer to help himself," adding that "the Government is about to increase its attack in the broad field of agricultural marketing, the success of which will have a material bearing upon the economic position of the farmer."

"The Government has and should furnish the American farmer with leadership in the field of research and marketing," he said. "But, there are those who would have the Government go far beyond this field. There are those who would have the Government build fertilizer plants and furnish a select group of farmers with free fertilizer and this amazing suggestion is made under the pretext of providing additional research and test demonstrations."

"Sponsors of the program to put the Government in the fertilizer business conveniently overlook the fact that during the war the industry more than doubled its production, notwithstanding the limitations of war conditions. They overlook the fact that the U. S. D. A. annually spends millions of dollars on research, education and test demonstrations. The fertilizer industry in all normal periods has taken care of the farmers' requirements and will meet the demands of the future. In fact, industry now is expanding just as rapidly as building equipment, labor, transportation facilities and other materials become available."

Turning to the American system of private enterprise, Mr. Woodrum said that "under this system, we have been able to outstrip the world in production and per capita enjoyment of agricultural products, manufactured goods and services and those who would undermine this structure would render a disservice to both agriculture and industry."

"The American system of private enterprise is that economic philosophy which guarantees to every citizen an equal opportunity, free from artificial restraints, to build his own business and enjoy the profits of his own labor," he added. "It is essentially the American way of life and unless we preserve it, we cannot continue along the road to economic stability and security."

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## St. Regis Appoints Simonton as Oswego Manager

Budd E. Simonton has been appointed manager of the Oswego (N. Y.) Multiwall Paper Bag Plant of the St. Regis Paper Company, according to an announcement by Wilford E. Hahn, general manager of bag production.

Mr. Simonton has been with St. Regis since 1945 when he became manager of the Watertown, N. Y., bag plant. Prior to joining St. Regis, he was associated with several bag manufacturers including Southern Advance Bag and Paper Company and Union Bag and Paper Corporation.

As manager at Oswego, Mr. Simonton succeeds Theron Contryman, who held the position for 18 years. Mr. Contryman, who is now on a four-month leave of absence because of ill health, is expected to rejoin St. Regis in a new capacity which will take full advantage of his extensive experience in paper bag manufacturing methods.

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## Larger Crop of Winter Wheat

The May estimates of the U. S. D. A. Crop Reporting Board show a prospective production of winter wheat totaling 1,025,789,000 bushels, compared with 873,893,000 bushels for the 1946 crop, and 653,893,000 bushels per year for the 1936-1945 period. A yield of 18.9 bushels per acre is indicated, an increase of 0.9 bushel over 1946 and 2.8 bushels over the 1936-1945 average. A rye crop of 24,662,000 bushels is indicated, compared with 18,685,000 bushels in 1946 and an average of 37,934,000 bushels for the 1936-1945 period.

## American Plant Food Council Annual Convention

Interesting Program Prepared for Meetings at Hot Springs, Va., on June 13th and 14th

Secretary of Agriculture Clinton P. Anderson will be among the speakers at the annual convention of the American Plant Food Council at the Homestead, Hot Springs, Va., June 13th and 14th, the program of which includes nationally-known agricultural editors, soil scientists, agricultural leaders and representatives of 4-H Clubs and Future Farmers of America. The public sessions of the convention will be held on the mornings of these two days, leaving the afternoons free for golf and other recreational features. A well-rounded program of timely addresses has been arranged by the Convention Committee, which consists of W. T. Wright, F. S. Royster Guano Co., *Chairman*; J. A. Howell, Virginia-Carolina Chemical Corp.; George E. Pettit, Potash Co. of America; Clifton A. Woodrum, president of the American Plant Food Council.

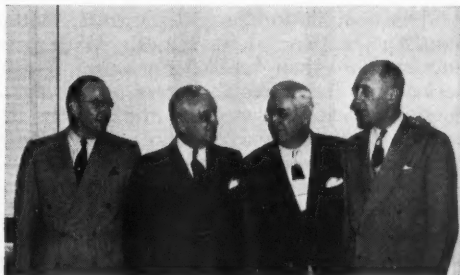
### Meetings

Representative Harold D. Cooley, of North Carolina, member of the House Agriculture Committee and Dr. Firman E. Bear, chairman of the Soils Department, Agricultural Experiment Station at New Brunswick, N. J., will be the guest speakers on the program for Friday, June 13th, which will include the annual address of the Council president, Clifton A. Woodrum. This meeting will start at 11 A. M., Eastern Standard Time.

An "Agricultural Editors' Breakfast Forum," starting at 8 o'clock, with "A Long-Range Look at Agriculture" as the subject will be a feature of the morning program on June 14th with Dr. Paul D. Sanders, editor of *The Southern Planter*, Richmond, Va., as moderator and Robert H. Reed, editor of the *Country Gentleman*, Philadelphia; Ray Yarnell, editor of *Capper's Farmer*, Topeka, Kans., and W. C. Lassetter, vice-president and editor, *The Progressive Farmer*, Memphis, Tenn., as speakers.

Professor Emil Truog, chairman of the Soils Department of the University of Wisconsin, Madison, will deliver the principal address on the morning program, Saturday, June 14th, followed by talks by Gus R. Doug-

lass, Jr., Grimms Landing, W. Va., National President of the Future Farmers of America; Carl M. Orth, Route 6, Terre Haute, Ind., one of the winners in the National 4-H Club Field Crops Contest; and William G. Carlin, R. D. 4, Coatesville, Pa., "Star Farmer of America," using as their theme, "Youth in Agriculture."



Convention Committee of the American Plant Food Council: J. A. Howell; W. T. Wright, *Chairman*; Clifton A. Woodrum; George E. Pettit

The annual banquet of the Council will be held on Saturday evening, June 14th. The principal speaker will be Clinton P. Anderson, Secretary of Agriculture.

### Election of Directors

At the convention, eight members of the Board of Directors will be elected for a three-year term ending June 30, 1950. The present directors whose terms expire and who, under the By-Laws of the Council, are not eligible for re-election, are as follows:

H. M. Albright, United States Potash Co., New York, N. Y.

Ralph B. Douglass, Smith-Douglass Co., Inc., Norfolk, Va.

D. P. Granberry, Laurel Oil and Fertilizer Co., Laurel, Miss.

W. T. Steele, Jr., Cooperative Fertilizer Service, Richmond, Va.

(Continued on page 30)

## Industry Makes Record Fertilizer Tonnage

The fertilizer industry made it possible for American farmers to use more commercial fertilizer in 1946 than they had used in any previous year.

Maurice H. Lockwood, president, The National Fertilizer Association, has made public the Association's annual report on consumption which shows that approximately 14,900,000 tons were used in 1946, representing an increase of 1,700,000 tons or 13 per cent above 1945, the previous all-time peak. Consumption last year was more than twice as large as the average annual consumption in 1935-1939, the period immediately preceding the outbreak of World War II.

"This compilation," said Lockwood, "is the industry's answer to its critics. With production more than doubled since the pre-war period, fertilizer manufacturers are doing a magnificent job in meeting the greatly increased demands of agriculture. New plants are being constructed in all parts of the country where demands indicate the need and we look forward to an even greater production in 1947 than in 1946. Under these circumstances it would appear inconceivable that the Congress will put its stamp of approval on the so-called Soil Fertility bills, (H.R. 3421 and S. 1251), which would put the Government into the fertilizer business."

Distribution by commercial producers accounted for 14,530,000 tons of the total 1946 consumption, with the remaining 362,000 tons representing direct distribution by Government agencies. The fourth consecutive annual decline was registered in the tonnage distributed directly by the Government, and such distribution in 1946 was at the lowest point since 1939, although the Government bought, through its Purchase Order Plan, 888,700 additional tons.

In making public its 1946 compilation, the N. F. A. gave the following reasons for the substantial increase in fertilizer use during the last several years: (1) the educational program carried on by the fertilizer industry, the U. S. D. A., and the state colleges of agriculture and their extension services; (2) a shift in crop production due in part to a change in the American diet; (3) the comparatively rapid growth in fertilizer use in the newer agricultural regions of the West; (4) the ability of the commercial plant-food industry to supply increased quantities of improved fertilizer.

## Ten-Year Increase in Fertilizer Consumption

A comparison has been made by The National Fertilizer Association, showing the increase in fertilizer consumption during the past ten years, as indicated by tax tag sales for the July-April period. The marked increases in both the Southern and Midwestern areas during this ten-year period clearly illustrate the increasing importance of fertilizer as an aid to better and more profitable crops. During this period sales in the 11 Southern States rose 41 per cent, with State increases ranging from 13 per cent to over 1,000 per cent. The disparity in the range of increases may be explained by the fact that the more moderate increases were reported for the States in which fertilizer sales have always been high while the pronounced increases have occurred in those States where relatively little fertilizer was used ten years ago.

July-April tax tag sales in the five Midwestern States were 209 per cent greater than for the corresponding period ten years ago. The table shows that tag sales in Missouri, which accounted for about 20 per cent of total sales in the Midwestern States ten years ago, increased by 140 per cent; tag sales in Kansas, on the other hand, which represented only 2 per cent of all Midwestern sales ten years ago, increased by 542 per cent.

### JULY-APRIL TAG SALES FOR 1937 AND 1947

SOUTH			
State	1937	1947	% Change
Virginia.....	418,797	584,547	+ 40
N. Carolina....	1,130,134	1,492,026	+ 32
S. Carolina....	725,060	818,115	+ 13
Georgia.....	825,352	1,007,250	+ 22
Florida.....	490,538	857,330	+ 75
Alabama.....	588,150	697,650	+ 19
Tennessee.....	127,438	250,302	+ 196
Arkansas.....	68,300	173,200	+ 154
Louisiana.....	153,517	230,137	+ 50
Texas.....	83,390	344,508	+ 313
Oklahoma.....	6,025	66,735	+ 1,008
Total.....	4,616,701	6,521,800	+ 41

MIDWEST			
State	1937	1947	% Change
Indiana.....	246,934	621,162	+ 152
Illinois.....	43,391	313,020	+ 621
Kentucky.....	99,339	296,874	+ 199
Missouri.....	100,180	240,255	+ 140
Kansas.....	12,010	77,069	+ 542
Total.....	501,854	1,548,380	+ 209

## The National Fertilizer Association Convention

The Twenty-second Annual Convention of The National Fertilizer Association will be held on June 19, 20, and 21, 1947, at the Essex and Sussex Hotel, Spring Lake, N. J. The Board of Directors and the Committees of the Association will hold their meetings on the opening day, Thursday, June 19th, and the general convention sessions will be held on the mornings of Friday, June 20th, and Saturday, June 21st. President Maurice H. Lockwood and his staff have prepared a very worthwhile program for these two sessions.

At the Friday meeting there will be reports on the industry situation and on the Association activities by President Lockwood and by Weller Noble, Pacific Guano Co., chairman of the Board of Directors. Other speakers at these general sessions will include:

Dr. W. H. Martin, Director of the New Jersey Agricultural Experiment Station, New Brunswick, N. J.

Glenn A. Cumings, U. S. Department of Agriculture, Washington, D. C.

Dr. Jackson B. Hester, Agronomist of the Campbell Soup Co., Riverton, N. J.

Professor C. J. Chapman, Department of Soils, University of Wisconsin, Madison, Wisc.

The Annual Dinner of the Association will be held on Friday evening, June 20th.

### Election of Directors

During the Convention, three directors at large are to be elected for the three-year term expiring in 1950. These directorships are at present held by the following:

J. A. Chucka, Eastern States Farmers Exchange, West Springfield, Mass.

Robert S. Cope, Reliance Fertilizer Co., Savannah, Ga.

Leon H. Davis, Southern Cotton Oil Co., New Orleans, La.

Seven district directors will also be elected for a three-year term by the members in those districts. The present directors are:

District 3. Elbert N. Carvel, Valliant Fertilizer Co., Laurel, Del.

District 6. R. L. King, Georgia Fertilizer Co., Valdosta, Ga.

District 7. H. B. Fultz, Hector Supply Co., Miami, Fla.

District 8. H. A. Parker, Sylacauga Fertilizer Co., Sylacauga, Ala.

District 9. C. D. Shallenberger, Shreveport Fertilizer Co., Shreveport, La.

District 10. S. F. Elwood, Farmers Fertilizer Co., Columbus, Ohio.

District 11. E. B. Hegelson, Magnolia Fertilizer Co., Seattle, Wash.

### Golf Tournament

The annual golf tournament will be held during the afternoons of June 19th, 20th and 21st. The committee in charge is composed of A. L. Walker, Jr., *Chairman*; J. E. Barnes, S. F. Elwood, A. N. Into, R. L. King, John A. Miller. As in past years, there will be a complete series of both scratch and handicap events, which will give every entrant, whether he breaks 70 or fails to break 100, a chance to win one of the prizes to be offered. The committee would like to have entries as early as possible; these should include name, name of company represented, golf club of which entrant is a member and club handicap. Entries should be sent to A. L. Walker, Jr., *Chairman*, 75 East 45th St., New York 17, N. Y.

Play on Thursday, June 19th, and Friday, June 20th, will be on the course of the Spring Lake Golf and Country Club. On Saturday, June 21st, the Homestead Country Club course will be used. Both clubs are about one mile from the hotel and arrangements have been made for transportation to and from the courses.

The Ladies Putting Contest will be held at the Spring Lake Club on Friday, June 20th. The committee is also arranging a Ladies Bridge Tournament.

### Transportation

Spring Lake is located on the New Jersey coast, about 55 miles by rail or road from New York City. Frequent trains leave the Pennsylvania Station, New York, by both the Pennsylvania and the Jersey Central Railroads. Travelers coming from the South can make connections at Newark, N. J., without having to go into New York City.



## THE AMERICAN FERTILIZER

ESTABLISHED 1894  
PUBLISHED EVERY OTHER SATURDAY BY  
WARE BROS. COMPANY  
1900 CHESTNUT ST., PHILADELPHIA 3, PA.

A Magazine international in scope and circulation devoted  
exclusively to the Commercial Fertilizer Industry and  
its Allied Industries

PIONEER JOURNAL OF THE FERTILIZER INDUSTRY

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2246 E. Lake Road, N. E.,  
Atlanta, Ga.

### ANNUAL SUBSCRIPTION RATES

U. S. and its possessions, also Cuba and Panama.....	\$3.00
Canada and Mexico.....	4.00
Other Foreign Countries.....	5.00
Single Copy.....	.25
Back Numbers.....	.50

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Vol. 106                      MAY 31, 1947                      No. 11

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## Underwriters Report on Ammonium Nitrate Fire Hazard

Fourteen precautions that should be observed in handling and transporting ammonium nitrate are outlined in a joint report on the Texas City disaster issued by the Fire Prevention Bureau of Texas and the National Board of Fire Underwriters, 85 John St., New York City.

The report points out that the War Department Ordnance Safety Manual classifies ammonium nitrate as an explosive when it is stored with other combustibles in an explosive area. Smokeless powder regulations apply to ammonium nitrate.

"Proper labelling of containers is of utmost importance," says the report. "The label should be red in color with the words 'Hazardous Chemicals'—'Ammonium Nitrate'—'Handle with Care' prominently displayed with any other notations in small type, preferably of some other color."

The report points out that ammonium nitrate should never be stored in contact with carbonaceous materials or with cadmium, zinc, copper, tin or lead. It recommends also that it be kept apart from combustible commodities like sulphur, flour, sugar, compressed cotton and charcoal.

The fourteen recommendations of the two fire prevention organizations are:

### Storage

1. Material should be stored only in masonry or fireproof sprinklered buildings.
2. Storage should preferably be in separate fire divisions from highly combustible commodities or well segregated.
3. Piles of ammonium nitrate in paper bags in storage should not exceed ten bags high, six bags wide and 30 bags long with three-foot separation between piles and handling aisles of ten feet every 100 feet.
4. Spilled material from broken bags must be re-sacked immediately.

### Handling

5. Ships' holds or boxcars must be thoroughly clean before loading operations are begun.
6. Spilled material in the holds, cars or on docks and discarded sacks must be removed immediately.
7. Proper dunnage and sweat-boards must be used in ships' holds and boxcars to prevent friction and to allow for circulating of air.



8. Smoking or the use of open lights *must be strictly prohibited* at any time.
9. Other cargo must not be placed in the same hold with ammonium nitrate.
10. Keep material clear of all steam lines and wiring.
11. Pending the outcome of tests now in progress, it is suggested that steam *not* be used for fire fighting in compartments containing ammonium nitrate.

#### Fire Fighting Operations

12. Any ship with ammonium nitrate entering a port must notify the port facility who in turn should notify the chief of the fire department immediately.
13. Fire departments combatting ammonium nitrate fires should use only water in large quantities (applied gently so as not to scatter the material) as an extinguishing agent and all personnel entering the fire area must wear masks approved for use in such locations. Fire in ammonium nitrate usually generates large quantities of oxides-of-nitrogen gasses which are extremely toxic.
14. Cities in which large industrial operations are present or which are in areas subject to hurricanes, earthquakes, tornadoes and other like disturbances should have a well preconceived and organized Disaster Plan to include all relief, law enforcement, fire fighting, military and naval agencies.

### One Basic Principle Rather than One Law

In our April 19th issue, we commented on The National Fertilizer Association's statement of policy regarding State fertilizer legislation as follows: "The N. F. A. directors, while not referring to the model bill (proposed by a committee from the Fertilizer Control Officials and the American Society of Agronomy) in their resolution, approve in general the objects of this bill, with the exception of the provision for an official list of grades in each State, to which fertilizer sales would be limited."

As there has arisen a question as to the exact interpretation of the above statement, may we clarify it by stating that we were referring merely to the general principles of accurate statement of analysis, protection of the farmer in his fertilizer purchases, etc. We did not intend to convey the impression that the Association was endorsing the idea of a single uniform law for all States, which would not be able to meet the local problems which

differ from State to State. We agree with the Association's statement that "for dealing with such problems, no single legal formula can be found that would be suitable from coast to coast."

### New Hayward Bucket Bulletin

Lighter than most other buckets of similar size and rating, the latest Hayward E-16 Re-handling Clam Shell Bucket makes definite economies possible by its ability to handle bigger loads with smaller bucket weight. This is one of the many features and details described in a revised Bulletin No. 697 just issued by the manufacturer, The Hayward Company, 50 Church Street, New York 7, N. Y.

Of interest to cost-conscious rehandlers of bulk materials, this well-illustrated bulletin also shows how the Hayward E-16 Bucket can be adapted as well for excavating, mud work, dredging and other services. A valuable chart lists bucket load capacities, weights and dimensions in terms of various materials handled, together with figures on recommended wire rope diameters, reeving and closing lengths.

Copies of Bulletin No. 697 may be obtained by writing direct to the manufacturer.

### World Cotton Production Drops

The world's 1946-47 cotton production is estimated at 21,500,000 bales (of 500 pounds gross), compared with an earlier estimate of 22,050,000 bales, and a crop of 20,650,000 bales the year before, according to the U. S. Department of Agriculture. The pre-war (1935-36 to 1939-40) average was 31,000,000.

The Department's Office of Foreign Agricultural Relations reports the current world cotton crop did not reach earlier expectations, largely as the result of unfavorable weather in the United States and in the Southern Hemisphere. The Southern Hemisphere crops were just being planted when the Office released its last world estimate of 22,050,000 bales Nov. 4, 1946.

World acreage of cotton increased about 4 per cent in the current year, being estimated at 58,480,000 acres compared with 56,420,000 in 1945-46. Nearly all the major producing countries shared in the increase, but in some countries this did not result in a production increase because of lower yields caused by unfavorable weather. The greatest percentage increases in acreage occurred in Egypt, Brazil and the Soviet Union.

### April Tag Sales

Reports of State control officials to The National Fertilizer Association indicate that fertilizer tax tag sales in 16 States during April of this year were equivalent to 954,000 short tons. Compared with a year ago, April sales were 6 per cent higher, and compared with April, 1945, they were 5 per cent higher. The sale of 954,000 equivalent tons last month represented a higher total than for any April since 1941, when sales were equivalent to 1,365,000 tons.

Of the 11 Southern States, five reported increases over the previous April. The increases in tonnage reported by these five States, however, was large enough to offset the decreases in the remaining six States, with the result that the total tonnage reported by the 11 Southern States was 5 per

cent higher than for the preceding April. The greatest decrease, amounting to 30 per cent, was reported by Louisiana.

Sales in the Midwestern States were 12 per cent higher than in last April. Kentucky and Missouri reported decreases from the preceding April, but the other three States reported substantial increases.

Tag sales for January-April of this year, amounting to 4,734,000 equivalent tons, were 7 per cent lower than the 5,113,000 equivalent tons reported for the same period last year. Tag sales for the 11 Southern States were 10 per cent lower than for the corresponding period in 1946; Arkansas, Texas, and Oklahoma reported increases but the other eight States registered decreases ranging from 5 to 19 per cent. Sales in the Midwestern States were up 9 per cent, with only two States failing to report an increase.

### FERTILIZER TAX TAG SALES

COMPILED BY THE NATIONAL FERTILIZER ASSOCIATION

STATE	APRIL			% OF 1946	JANUARY-APRIL		
	1947 TONS	1946 TONS	1945 TONS		1947 TONS	1946 TONS	1945 TONS
Virginia.....	83,676	83,857	63,023	93	344,806	372,320	311,088
N. Carolina.....	173,862	205,133	219,771	88	965,592	1,100,330	1,041,909
S. Carolina.....	82,078	70,050	95,890	89	528,008	592,560	601,868
Georgia.....	143,920	130,229	138,576	95	775,413	817,264	817,685
Florida.....	90,949	71,666	55,830	84	315,210	373,150	330,412
Alabama.....	89,150	78,600	93,150	81	476,750	585,650	564,150
Tennessee.....	46,902	18,803	54,400	84	148,692	177,894	173,650
Arkansas.....	24,500	27,250	9,950	119	118,500	99,200	79,900
Louisiana.....	16,600	23,721	24,100	88	102,180	115,531	112,186
Texas.....	33,404	35,289	22,910	101	172,648	170,841	123,035
Oklahoma.....	2,550	2,900	3,000	160	38,290	23,998	14,662
<i>Total South.....</i>	<i>787,591</i>	<i>747,498</i>	<i>780,600</i>	<i>90</i>	<i>3,986,089</i>	<i>4,428,738</i>	<i>4,170,545</i>
Indiana.....	54,422	35,123	26,836	113	229,529	202,740	144,448
Illinois.....	40,280	17,650	37,500	138	166,925	120,658	113,425
Kentucky.....	37,623	48,293	54,013	99	198,354	199,231	171,458
Missouri.....	19,850	43,579	10,880	82	119,277	146,182	83,017
Kansas.....	14,045	4,153	950	221	33,943	15,362	13,865
<i>Total Midwest.....</i>	<i>166,220</i>	<i>148,798</i>	<i>130,179</i>	<i>109</i>	<i>748,028</i>	<i>684,173</i>	<i>526,213</i>
<i>Grand Total.....</i>	<i>953,811</i>	<i>896,296</i>	<i>910,779</i>	<i>93</i>	<i>4,734,117</i>	<i>5,112,911</i>	<i>4,696,758</i>

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## FERTILIZER MATERIALS MARKET

### NEW YORK

**End of Fertilizer Season Finds Shortage in All Principal Materials. Little Improvement Expected for Next Season. Organic Prices Lower but Still Above Fertilizer Range. Mixers Contracting for Next Season's Materials**

*Exclusive Correspondence to "The American Fertilizer"*

NEW YORK, May 23, 1947.

As the present fertilizer season draws near to conclusion, it is evident that stocks of all basic materials are short, and there will be no improvement in the supply situation going into the new fertilizer year. The general feeling among the trade is that superphosphate will be in somewhat more abundant supply from July forward, but chemical nitrogen will remain short over the next year's period. Announcement from Washington of allocations for nitrogenous materials on a world basis is expected momentarily. It is anticipated that potash will continue tight, with increased supplies depending upon imports available from Europe during the new season.

It can only be reported during the recent period that there is continued heavy pressure on suppliers for shipments of all primary fertilizer materials. Packing house by-products have experienced declines during the past two weeks, but offerings are still held higher than most fertilizer mixers can afford. Buying interest in the feed trade has become more active, but actual trading has been relatively light.

#### **Sulphate of Ammonia**

Call from fertilizer manufacturers remains above available supplies, with production at peak levels. Higher prices for the new season are expected, but some contracts have been made at current levels. No improvement is looked for in the supply situation after July.

#### **Nitrate of Soda**

It is probable that this material will continue short of demand throughout the next few months, as stocks of both domestic and imported have not come up to expectations. There have been no recent imports in this area, and no supplies presently available for immediate shipment.

#### **Organic Materials**

Dried blood, bone meal and tankage have all registered price declines, but these markets appear firm at the new levels. Blood and tankage have been offered rather freely at \$7.25 (\$8.79 per unit N), and foreign bone meal for fertilizer use is quoted nominally at \$63 per ton, c. i. f. There has been a complete absence of offerings on castor pomace and other organics.

#### **Superphosphate**

No apparent relaxation in demand can be noted as the season draws to a close. The supply situation remains exceedingly tight in spite of record production of both normal and concentrated material. Exports have declined appreciably due to the fact that foreign quotas have been fulfilled for the present year in most countries.

#### **Potash**

Interests for new contracts is very active, with fertilizer manufacturers anxious to contract at the new price schedules announced by major producers. Shipments from the mines to fertilizer plants continue heavy.

### PHILADELPHIA

**Nitrogen Top Dressing Materials Still in Sharp Demand. Market Tight in All Materials with Supplies Short**

*Exclusive Correspondence to "The American Fertilizer"*

PHILADELPHIA, May 23, 1947.

The demand continues for chemical nitrogen, and is particularly acute for top-dressing purposes. The planting season, as previously reported, is about three weeks late, and the weather continues to be unfavorable in this vicinity. Shipments of ammonium nitrate are reported quite behind schedule.

*Sulphate of Ammonia.*—The production has

increased, but not enough to fully supply the demand. Shipments are being made from production, with no accumulation of stocks possible.

*Nitrate of Soda.*—Market continues exceedingly tight, with deliveries behind schedule, and top-dressing requirements unsatisfied.

*Castor Pomace.*—No first hands transactions reported. Shipments are moving on contracts.

*Blood, Bone, Tankage.*—There is sufficient buying interest in bone to keep the market fairly level. Blood sales were reported at \$7.00 to \$7.25 per unit of ammonia (\$8.53 to \$8.81 per unit N), and tankage at \$6.00 to \$6.50 (\$7.29 to \$7.90 per unit N). Hoof meal at \$6.75 (\$8.20 per unit N) did not draw buying interest.

*Fish Scrap.*—There has been some little trading in meal at reduced prices, but practically no offerings by producers.

*Phosphate Rock.*—The demand has been unusually heavy; and while shipments are moving right along, they are still not meeting requirements.

*Superphosphate.*—There has been no slackening of demand and buying conditions continue tight.

*Potash.*—Despite arrivals from Europe, the demand is still well ahead of the current supply.

## CHARLESTON

**Mixed Fertilizers Being Used for Top Dressing. Total Tonnage at Record Level. Increased Freight Rates on Phosphate Rock Proposed**

*Exclusive Correspondence to "The American Fertilizer"*

CHARLESTON, May 23, 1947.

Demand for mixed fertilizers remains more active than expected for this time in the season. For lack of nitrate of soda and sulphate of ammonia for top-dressing purposes many farmers are calling for mixed goods for that purpose. Shortages of prime ingredients—mineral nitrogen, superphosphate and potash—continue to hamper production of mixed fertilizers, but consumers will have received, nevertheless, more fertilizers than in any previous fertilizer season.

*Organics.*—Demand is slow for organics and the market took a drop recently with domestic blood and tankages off in price from levels maintained over the past several months. South American organics are still higher priced than domestic and little interest is shown by U. S. buyers. European organics are still unobtainable. Domestic nitrogenous is quoted at \$4.75 per unit ammonia (\$5.77

per unit N), f. o. b. midwestern production point for May/June shipment, but little is offered.

*Castor Pomace.*—No new business is reported and movement is against contracts already in effect.

*Hoof Meal.*—This is quoted spot at about \$7.00 per unit ammonia (\$8.53 per unit N), bulk Chicago. South American sellers' views are higher.

*Blood.*—Price is around \$7.00 to \$7.25 (\$8.53 to \$8.81 per unit N), in bulk, f. o. b. Chicago, with neither buyers nor sellers anxious to do business.

*Tankage.*—Fertilizer grade is around \$7.00 (\$8.53 per unit N), f. o. b. Chicago, with little buying interest shown.

*Nitrate of Soda.*—Prices are firm and unchanged. Demand for top-dressing is acute as supplies have been inadequate all season. Domestic production remains curtailed and imported supplies much delayed.

*Sulphate of Ammonia.*—Demand remains strong and supplies are inadequate to meet the call. Prices are firm. Contract shipments have improved slightly.

*Ammonium Nitrate.*—Supplies are still short of demand as call for nitrogen-bearing fertilizers remains active in some sections. Prices are firm and unchanged.

*Potash.*—Demand still exceeds supply of spot material, and market condition is tight. Contract prices for the new season range from 37½ cents per unit K<sub>2</sub>O to 45½ cents, f. o. b. works, on 60 per cent muriate in bulk.

*Superphosphate.*—In spite of high production, demand outstrips supply and practically no stocks are on hand.

*Phosphate Rock.*—Cost of rock to acidulators may be boosted by increase in freight rates on this material, as there has been proposed by the railroads an increase of 34 cents per gross ton effective May 30th. Market remains tight with consumers not getting all the rock they want. Car shortage is partly responsible.

## CHICAGO

**Supply of Fertilizer Organic Materials Dwindles. Some Increase in Feed Prices.**

*Exclusive Correspondence to "The American Fertilizer"*

CHICAGO, May 24, 1947.

While there was some trading in nitrogenous during the interim, at sellers' price and for delivery during early summer, the supply has again disappeared. One of the large producers of fertilizer tankage now states he has none and is not producing it.

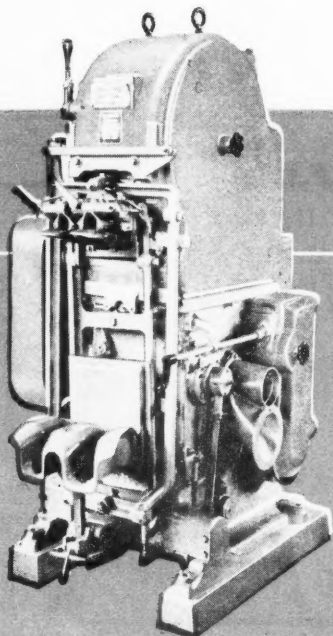


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There seems some confusion in the animal protein feed market, as one large packer raised his prices recently for the finished feed while others have made no announcement of increases as yet, the asking prices for wet unground tankage and blood being around \$7.00 per unit ammonia (\$8.51 per unit N), f.o.b. shipping point.

### March Superphosphate Production

Production of superphosphate in March, 1947, totaling 889,000 equivalent short tons (basis 18 per cent A. P. A.), increased 21 per cent over that of a year ago, according to reports submitted to The National Fertilizer Association and a summary of reports submitted to the Bureau of the Census. Shipments of superphosphate during March amounted to 580,000 equivalent tons, an increase of 5 per cent over the preceding March. The 433,000 tons of superphosphate used in mixed goods during March represented an increase of 14 per cent over the same period last year.

Compared with a year earlier, the increase in March production was greatest for concentrated superphosphate (45 per cent

A. P. A.); the 34,000 equivalent tons reported for this March was 33 per cent greater than the 26,000 tons last March. Production of normal superphosphate (18 per cent A. P. A.) was 19 per cent greater than for a year ago, while the tonnage reported for wet base goods (18 per cent A. P. A.) was 9 per cent greater than that produced last March.

### Obituary

#### Herbert Meyers

Herbert H. Meyers, vice-president of the Virginia-Carolina Chemical Corporation, died suddenly at his home in Richmond, Va., on May 12th. He was 56 years old.

Mr. Meyers has been connected with the fertilizer business during most of his business life and was widely known throughout the industry. He was manager of the purchasing department of the V-C Company for a number of years prior to his promotion to the office of vice-president.

During the war, he served with the War Production Board as a dollar-a-year man from October, 1941, to July, 1944. He was administrator of its nitrogen program in the inorganics branch of the chemical bureau.

#### William H. Ross

In the death in Washington on May 16th at the age of 71 of Dr. William H. Ross, retired Principal Chemist, Division of Soils, Fertilizers and Irrigation, Bureau of Plant Industry, U. S. Department of Agriculture, the fertilizer industry has suffered a great loss. No other contemporary chemist has contributed so much to fertilizer chemistry as has Dr. Ross. A native of Nova Scotia, and later a citizen of the United States, he took his under

	Normal 18% APA Tons	Concen- trated 45% APA Tons	Base Goods 18% APA Tons
Production			
March, 1947.....	798,259	33,999	5,618
February, 1947....	747,730	28,514	5,563
March, 1946.....	668,134	25,636	5,133
Shipments and Used in Producing Plants			
March, 1947.....	917,737	34,586	8,776
February, 1947....	821,964	27,644	9,717
March, 1946.....	858,581	25,735	12,810
Stocks on Hand			
March 31, 1947...	512,489	52,455	2,257
February 28, 1947.	613,797	52,579	5,305
March 31, 1946...	594,151	36,026	4,103



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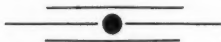
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graduate work and master's degree at Dalhousie University, Halifax, took work at Johns Hopkins and his doctor's degree at the University of Chicago.

Dr. Ross was the country's authority on the chemistry of fertilizer phosphates and it was largely due to his researches that the true chemical composition of phosphate rock and the various compounds resulting from the acidulation of phosphate rock was determined. He also did pioneer work in the production of phosphoric acid in the electric furnace. Among other of his noteworthy research accomplishments in fertilizer chemistry were the chemistry of the ammoniation of superphosphate, the granulation of fertilizers and fertilizer materials, moisture determination, boron toxicity, and conditioning of fertilizers and fertilizer materials. His latest project was work on the use of ammonium nitrate in fertilizers, its chemical analysis and treatment to avoid caking.

After several years as chemist at the University of Arizona he joined the U. S. D. A. where he remained 34 years until retirement last year. Since his retirement Dr. Ross has been a cooperator with his old Division and has also been a consultant for The National Fertilizer Association. For many years he was the Referee on Phosphates of the Association of Official Agricultural Chemists and was president of that organization last year.

Dr. Ross was a captain in the Chemical War Service in World War I and he will be interred in Arlington National Cemetery. Mrs. Ross, two sons, and a brother survive him.

### Reports on German Fertilizer Processes Available

Two new methods of making synthetic fertilizers are described in a report on German nitrogen products now on sale by the Office of Technical Services, U. S. Department of Commerce. The report, prepared by Robert B. MacMullin for OTS' technical industrial intelligence division, describes fertilizer manufacture at the I. G. Farbenindustrie plants at Leuna and Piesteritz in the Russian occupation zone.

Leuna officials told the investigator that they had recently developed a process for making two of their standard fertilizers, Stickstoff-Kalk-Phosphat and Nitrophoska, without the use of phosphoric acid. Both products have been made at Piesteritz and Leuna for many years by adding phosphoric acid to the ground phosphate rock in order to raise the phosphate-calcium ratio to the point required for fertilizer. In the new process, raw phosphate rock is treated with nitric acid and the excess calcium is precipitated as calcium nitrate tetrahydrate, which can also be used as a fertilizer. After the phosphate material has been neutralized with ammonia gas it is granulated, either with slag to make Stickstoff-Kalk-Phosphat or with potassium salts to make Nitrophoska, and finally dried.

The process was never put into commercial production at Leuna because operations were curtailed by wartime shortage of phosphate rock. Leuna officials claim, however, that the new process has distinct advantages over the old.

Another fertilizer called Leuna Nitrophoska, somewhat different from the Nitrophoska obtained by the process described above, was recently developed at Leuna. Like the regular Nitrophoska, it contains 12 per cent nitrogen, 12 per cent phosphorus pentoxide and 21.5 per cent potash. However, the phosphate is in a non-water soluble form, making it unusable for some purposes but perfectly suitable for certain other types of crops and applications. According to the German experts, Leuna Nitrophoska may be produced more economically than regular Nitrophoska. By decomposing the phosphate rock in stages, considerably less nitric acid is needed in manufacture.

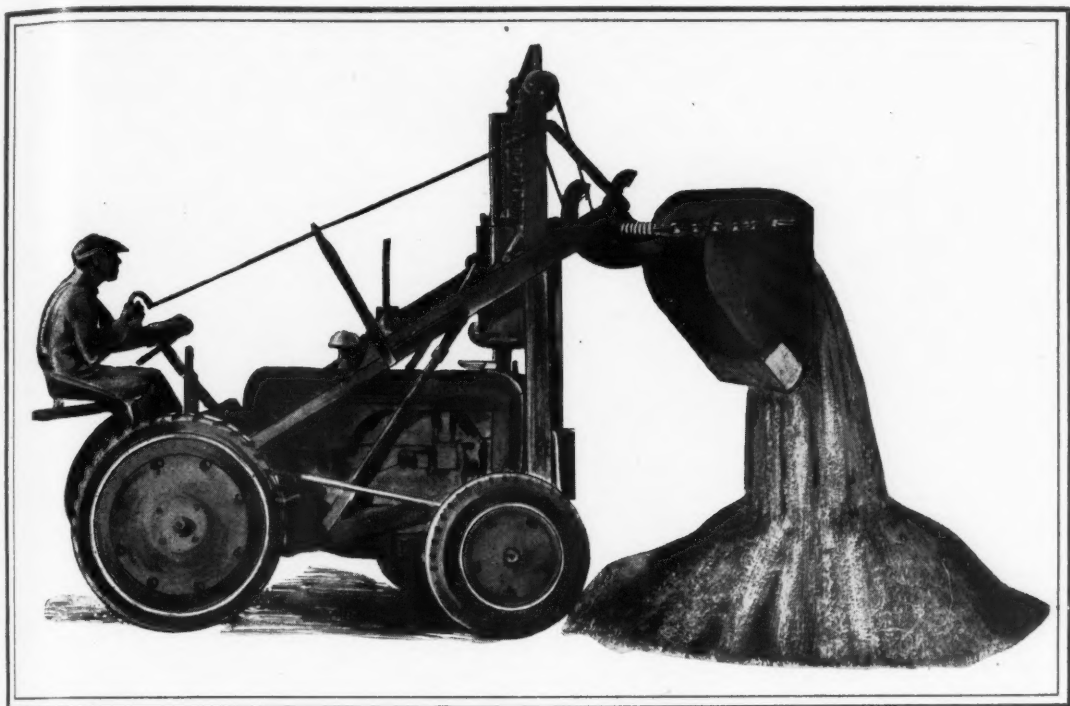
For many years the I. G. Farben plants at Leuna and Piesteritz have been important sources of artificial fertilizers in Germany. Recently these plants have tended toward the production of complete fertilizers with

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"soil improving" qualities. None of the Leuna and Piesteritz products are radically new types, but some recent improvements in manufacturing methods should interest American companies, the investigator concludes.

In addition to the Nitrophoska fertilizers and Stickstoff-Kalk-Phosphat, the report describes manufacture of the following products: ammonium sulphate; ammonium nitrate (for use as an explosive or as an ingredient in mixed fertilizers); Leuna Salpeter, a granular fertilizer containing 26 per cent nitrogen; and Kalk-Ammon-Salpeter, a granular calcium-nitrogen fertilizer.

The report is entitled *Fertilizers made by I. G. Farbenindustrie A. G. at Leuna and Piesteritz* (PB-44650; photostat, \$4; microfilm, \$2; 57 pages, including flow sheets and tables).

The following supplements to this report contain more data on German fertilizers:

PB-49536 (*I. G. Farbenindustrie A. G. Bitterfeld, Flowsheet, Crude nitric acid*; photostat, \$2; microfilm, \$1; 28 pages, text in German) giving a drawing and lists of equipment used in nitric acid manufacture.

PB-49540 (*I. G. Farbenindustrie A. G. Bitterfeld, Cost Sheets*; photostat, \$1; microfilm, \$1; 8 pages, text in German) giving cost data for the first quarter of 1944 on ammonia gas, raw nitric acid, platinum catalyst and sodium nitrate.

PB-49541 (*Memorandum on plant improvement*; photostat, \$1; microfilm, \$1; 2 pages, text in German) outlining steps for improvement of nitric acid manufacture.

PB-49542 (*German documents on fertilizer processes at Leuna and Piesteritz*; photostat, \$5; microfilm, \$2; 66 pages, original German text and translation) including technical papers and drawings.

PB-52309 (*Spray machine for making fertilizers in prill form*; photostat, \$3; microfilm, \$1; 32 pages) with two drawings giving details of welded steel spray bucket used at Ammoniakwerk Merseburg, part of the Leuna works.

PB-52310 (*Spray tower for making fertilizers in prill form*; photostat, \$1; microfilm, \$1; 10 pages) with two drawings giving details of concrete spray tower used at Ammoniakwerk Merseburg, part of Leuna works.

Orders for these reports should be addressed to the Office of Technical Services, Department of Commerce, Washington 25, D. C., and should be accompanied by check or money order, payable to the Treasurer of the United States.

## New Hough Payloader

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The Model HF is well suited to excavation, stripping, grading, handling coal, fertilizer, or any bulk material. A completely descriptive Bulletin No. 166 is available upon request.

### Canadian Fertilizer Demand Exceeds Supply

Demand for mixed fertilizers and fertilizer materials in the province of Ontario during the current growing season may well be 10 to 15 per cent higher than last year's record fertilizer consumption of 236,026 tons, industry sources reveal, according to a report by the New York Journal of Commerce.

The general outlook, they state, is one of short supply despite optimistic reports of increased domestic production and greater imports.

#### Nitrogen Output Up

Fortunately, Canada is maintaining the production of nitrogen for fertilizers at maximum wartime levels. In spite of strikes and other difficulties, nitrogen producers still hope to produce enough tonnage to meet Canadian replacements and obligations to other countries.

Sulphate of ammonia is in very short supply. It is expected, however, that there will be enough other materials as ammonium nitrate and cyanamide to meet all reasonable needs for nitrogen fertilizers. One difficulty is that the import of nitrogen solutions from the U. S. has ceased. This source has to be replaced by other materials.

A large part of the superphosphate needed in Ontario is manufactured in the province. If the supply of imported phosphate rock can be maintained at the present rate, it is expected that enough superphosphate will be available to meet all reasonable demands.

The present boxcar shortage presents a serious distribution problem, however.

All the potash needed in Canadian agriculture is imported. Canada is, therefore, entirely dependent upon the supply available in potash-producing countries. The chief producer of potash in the Western Hemisphere is the United States, which has increased its production about two and a half times above pre-war. Throughout the war and since it has been the policy of the United States to treat Canadian manufacturers on the same basis as themselves.

#### Potash Short

Due to unavoidable delays in shipment, there is a temporary shortage of potash in Ontario. For this reason, during the four to six weeks emergency, fertilizer manufacturers are supplying the 4-8-8 and 4-8-6 analyses instead of the 4-8-10 variety.

For tobacco no more than 6 per cent potash fertilizer is available until the supply is again normal when the regular 8 per cent analyses can be resumed, industry sources state.

To make up the potash deficiency additional muriate of potash is being imported from France, to arrive in Ontario about the end of April or first half of May.

In the 236,026 tons of fertilizers sold last year in Ontario, it is estimated that a record of 17,985 tons of actual potash was used. It was planned to secure slightly more than this tonnage this year from the United States. Due to shortages of railway boxcars and other difficulties, shipments of potash in April and May may be less than was expected. With the additional potash from France, however, there will be available in Ontario during the season somewhat more potash than was used last year. As soon as the present emergency is over, the lower grades will be discontinued, industry spokesmen say.

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## FERTILIZER STATISTICS

(Continued from page 9)

and other environmental factors. The greatest use of fertilizers in Texas has until recent years been confined largely to the sandy, coastal plain soils of Texas. In more recent years, with development of interest in winter legumes, pasture improvement, and irrigation in other areas of Texas, the use of fertilizers in the western part of the State has greatly increased. This type of analysis has been widely used by agronomists, horticulturists, agricultural economists, and other agricultural specialists. In fact, these specialists have been largely instrumental in collecting the necessary data and making the analysis in a considerable number of States, and in some States it is the agronomists, rather than the State fertilizer control official, who do this work. It is the duty of the control official who has or should have the necessary data for this work to do the work so that the agricultural specialists can secure all of the necessary data from the published report of the official.

## Analysis by Both Grades and Counties

Analysis of fertilizer statistics tells what is being used; analysis by counties tell where it is being used, but the only analysis which tells both what and where fertilizer is being used is an analysis in which the tonnages of the different grades and materials sold in the different counties are given. In this type of analysis, counties appear on one axis and the grades and materials on the other. Louisiana, Mississippi, Texas, Florida, Arkansas and possibly others are now making this type of report. The first three States make the report by six-month periods ending June 30th and December 31st, while Florida makes a monthly report. Arkansas makes an annual report on June 30th. Combining all of the essential in-

formation into one report, this type of analysis answers most of the questions which any agricultural specialists will have, and there are many questions which can be answered only by this type of analysis. These reports are also widely used in the fertilizer industry in studying present situations and trends in the use of fertilizers in different sections of the State.

For illustrating some of the information which may be secured from this type of analysis, I have chosen three different areas in Texas. The first is composed of Cameron and Hidalgo Counties in the lower Rio Grande Valley, the second is a group of six counties on the eastern Gulf coast area, and the third is a group of six counties in northeastern Texas. Soils of the first group are alluvial, of relatively high fertility, level, fairly to very heavy, and with little underdrainage. Crops are citrus and vegetables. Soils of the second group are fine sandy loams to clays, much lower in fertility, with little underdrainage and very level, and the crops are principally rice and pastures. Soils of the third group are sandy coastal soils of low fertility, with rapid surface and underdrainage, and the crops are principally cotton and corn. Some data for the three areas are given in Table 2.

Area 1 was the principal user of fertilizer sold in the fall, and the principal user of materials sold in the spring. A very large amount of the fertilizer used in this area was materials. Ammonium nitrate used in this area amounted to 72 per cent of the total sold in the spring in the entire State. Concentrated superphosphate used represented over one-fourth of the total sold in the State in both spring and fall. Nitrogen was very high and potash very low in the average composition of fertilizer used in this area. Sales in the fall were not greatly different from sales in the spring. Most of the fertilizer sold in Areas 2 and 3 was mixed goods sold in the spring, but

TABLE 2.  
FERTILIZERS USED IN THREE GROUPS OF TEXAS COUNTIES

Tonnage	Fall			Spring		
	1	2	3	1	2	3
Mixed goods.....	8,475	869	596	5,818	20,600	28,964
Materials.....	14,461	1,135	1,274	12,867	7,545	3,605
Nitrogen.....	3,206	182	271	2,994	2,138	1,865
A. P. A.....	2,362	206	150	1,576	2,767	3,300
Potash.....	145	38	24	206	825	1,347
Average composition, %						
Nitrogen.....	14.0	9.1	14.5	16.0	7.6	5.7
A. P. A.....	10.3	10.3	8.0	8.4	9.8	10.1
Potash.....	0.6	1.9	1.3	1.1	2.9	4.1
Percentage of total						
Mixed goods.....	41.0	4.2	2.9	3.6	12.9	18.1
Materials.....	32.0	2.5	2.8	28.5	16.7	8.0

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the ratio of materials to mixed goods was considerably higher in Area 2 than in Area 3. The fertilizer sold in Area 2 averaged considerably higher in nitrogen and lower in potash than that sold in Area 3.

This type of report is used extensively by the Production and Marketing Administration, by salesmen of the manufacturers, by agronomists, and by others interested in purely local problems. Mr. Maddox, of Mississippi, in writing to me relative to this question, says that this type of analysis "is too valuable to this department, to industry, agricultural workers and farmers, to deprive them of that service. We would not, under any circumstances after compiling these statistics for sixteen years, discontinue it."

(To be continued in the next issue)

#### AMERICAN PLANT FOOD COUNCIL CONVENTION

(Continued from page 11)

A. D. Strobhar, Southern Fertilizer & Chemical Co., Savannah, Ga.

W. T. Wright, F. S. Royster Guano Co., Norfolk, Va.

Jas. F. Doetsch, Chilean Nitrate Sales Corp., New York, N. Y.

Edwin Pate, Dixie Guano Co., Laurinburg, N. C.

A director will also be elected to fill the unexpired term of the late Bayless W. Haynes, president of Wilson & Toomer Fertilizer Co., Jacksonville, Fla., who died on January 25, 1947. At the time of his death, Mr. Haynes was serving a term that would have expired on June 30, 1948.

#### Entertainment Features

The annual golf tournament will be held on the afternoons of Friday, June 13th, and Saturday, June 14th. The Golf Committee is made up of Albert B. Baker, Sr., *Chairman*; Albert B. Baker, Jr., C. F. Burroughs, Jr., W. L. Waring, Jr., C. E. Lightfoot. The events will include both scratch and handicap medal play, match play versus par, pickers handicap, etc., so that golfers of every level of ability will have a chance to win one of the handsome prizes which are being presented by a number of leading firms in the industry. Entries for the tournament may be sent to the chairman, Albert B. Baker, care of Bradley & Baker, 155 E. 44th St., New York City.

The Ladies' Entertainment Committee, headed by Mrs. Albert B. Baker, has arranged an attractive program for the golf widows and other ladies attending the convention. This will include a bridge tournament and a putting contest.

## Nitrogen Starvation Common to Corn in Virginia

Yellowing leaves, or so-called "firing," and slow growth, both symptoms of nitrogen starvation, are generally noted in most corn fields in Virginia, says P. H. DeHart, agronomist for the Extension Service.

To combat these symptoms, and also to assure enough minerals in the soil, DeHart advises applying limestone and liberal quantities of phosphate and potash in the form of commercial fertilizers or manure supplemented with superphosphate, and then applying nitrogen as a side-dressing as needed during the growing season.

The amount of nitrogen to apply will depend on how much has already been supplied through manure or legumes, and also on the number of corn plants an acre. If eight to ten tons of manure have not already been applied, or if a good growth of legumes has not been turned under, side-dressing with nitrogen will pay, DeHart believes.

He lists the following general recommendations:

Where very little fertilizer was used, apply 200 to 300 pounds per acre of nitrate of soda or its equivalent as side-dressing when corn is knee high, except on light sandy soils, when half of the nitrogen is applied when corn is knee high and half at the last cultivation.

Farmers are advised to watch their corn crop and if, before the last cultivation, it begins to turn yellow, to apply some quickly available nitrogen as side-dressing.

## Fertilizer for More Meat

Livestock producers are learning that application of fertilizer to their permanent irrigated pastures will result in increased gains.

In one test supervised by the California Agricultural Extension Service, two plots were set up to check on the value of fertilizer on pastures. Plot one, a 20-acre pasture, received 260 pounds of superphosphate per acre. Thirty head of beef cattle in a period of 111 days made a gain of 121 pounds per acre more than did a similar group of cattle on plot two. This plot was a similar 20-acre pasture which received no fertilizer. On the fertilized field 22 head of animals were considered of slaughter grade at the end of the test. Only nine had reached this degree of finish on the non-fertilized field.



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Bradley & Baker, New York City.

**DRYERS**

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Sturtevant Mill Company, Boston, Mass.  
Titlestad Corporation, Nicolay, New York City

**FERTILIZER (Mixed) MANUFACTURERS**

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International Minerals and Chemical Corporation, Chicago, Ill.  
Virginia-Carolina Chemical Corp., Richmond, Va.

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Huber & Company, New York City.  
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**FOUNDERS AND MACHINISTS**

Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Utility Works, The, East Point, Ga.

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Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Bradley & Baker, New York City.

### INSECTICIDES

American Agricultural Chemical Co., New York City.  
McLaughlin Gormley King Co., Minneapolis, Minn.

### LIMESTONE

American Agricultural Chemical Co., New York City.  
American Limestone Co., Knoxville, Tenn.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Bradley & Baker, New York City.  
Longview-Saginaw Lime Works, Inc., Birmingham, Ala.  
McIver & Son, Alex. M., Charleston, S. C.

### LOADERS—Car and Wagon

Hough Co., The Frank G., Libertyville, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.

### MACHINERY—Acid Making and Handling

Chemical Construction Corp., New York City.  
Monarch Mfg. Works, Inc., Philadelphia, Pa.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Utility Works, The, East Point, Ga.

### MACHINERY—Ammoniating

Sackett & Sons Co., The A. J., Baltimore, Md.  
Sturtevant Mill Company, Boston, Mass.

### MACHINERY—Elevating and Conveying

Hough Co., The Frank G., Libertyville, Ill.  
Hayward Company, The, New York City.  
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Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### MACHINERY—Grinding and Pulverizing

Bradley Pulverizer Co., Allentown, Pa.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Sedberry, Inc. J. B., Franklin, Tenn.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### MACHINERY—Material Handling

Hayward Company, The, New York City.  
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Link-Belt Co., Chicago, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### MACHINERY—Mixing, Screening and Bagging

Exact Weight Scale Co., Columbus, Ohio  
Link-Belt Co., Chicago, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### MACHINERY—Power Transmission

Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.

### MACHINERY—Superphosphate Manufacturing

Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### MANGANESE SULPHATE

McIver & Son, Alex. M., Charleston, S. C.

### MIXERS

Sackett & Sons Co., The A. J., Baltimore, Md.

Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### NITRATE OF SODA

American Agricultural Chemical Co., New York City.

### NITRATE OF SODA—Continued

Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City  
Bradley & Baker, New York City.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Schmaltz, Jos. H., Chicago, Ill.

### NITROGENOUS ORGANIC MATERIAL

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
DuPont de Nemours & Co., Wilmington, Del.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.

### NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.

### PHOSPHATE ROCK

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Ruhm, H. D., Mount Pleasant, Tenn.  
Schmaltz, Jos. H., Chicago, Ill.  
Virginia-Carolina Chemical Corp., Richmond, Va.

### PLANT CONSTRUCTION—Fertilizer and Acid

Chemical Construction Corp., New York City.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Titlestad Corporation, Nicolay, New York City  
Utility Works, The, East Point, Ga.

### POTASH SALTS—Dealers and Brokers

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
Schmaltz, Jos. H., Chicago, Ill.

### POTASH SALTS—Manufacturers

American Potash and Chem. Corp., New York City.  
Potash Co. of America, New York City.  
International Minerals & Chemical Corp., Chicago, Ill.  
United States Potash Co., New York City.

### PRINTING PRESSES—Bag

Schmutz Mfg. Co., Louisville, Ky.

### PYRITES—Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.

### REPAIR PARTS AND CASTINGS

Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Utility Works, The, East Point, Ga.

### ROUGH AMMONIATES

Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
McIver & Son, Alex. M., Charleston, S. C.  
Schmaltz, Jos. H., Chicago, Ill.

### SCALES—Including Automatic Bagging

Sackett & Sons Co., The A. J., Baltimore, Md.

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Stedman's Foundry and Mach. Works, Aurora, Ind.  
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### SCREENS

Link-Belt Co., Chicago, Ill.  
Sackett & Sons Co., The A. J., Baltimore, Md.  
Stedman's Foundry and Mach. Works, Aurora, Ind.  
Sturtevant Mill Company, Boston, Mass.  
Utility Works, The, East Point, Ga.

### SEPARATORS—Air

Sackett & Sons Co., The A. J., Baltimore, Md.

### SPRAYS—Acid Chambers

Monarch Mfg. Works, Inc., Philadelphia, Pa.

### SULPHATE OF AMMONIA

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
Huber & Company, New York City.  
Hydrocarbon Products Co., New York City.  
McIver & Son, Alex. M., Charleston, S. C.  
Schmalts, Jos. H., Chicago, Ill.

### SULPHUR

Ashcraft-Wilkinson Co., Atlanta, Ga.  
Texas Gulf Sulphur Co., New York City.

### SULPHURIC ACID

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
U. S. Phosphoric Products Division, Tennessee Corp.,  
Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

### SUPERPHOSPHATE

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
Davison Chemical Corporation, Baltimore, Md.  
Huber & Company, New York City.  
International Minerals & Chemical Corporation, Chicago, Ill.  
McIver & Son, Alex. M., Charleston, S. C.  
Schmalts, Jos. H., Chicago, Ill.  
U. S. Phosphoric Products Division, Tennessee Corp.,  
Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

### SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.  
International Minerals & Chemical Corporation, Chicago, Ill.  
U. S. Phosphoric Products Division, Tennessee Corp.,  
Tampa, Fla.  
Virginia-Carolina Chemical Corp., Richmond, Va.

### TANKAGE

American Agricultural Chemical Co., New York City.  
Armour Fertilizer Works, Atlanta, Ga.  
Ashcraft-Wilkinson Co., Atlanta, Ga.  
Baker & Bro., H. J., New York City.  
Bradley & Baker, New York City.  
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McIver & Son, Alex. M., Charleston, S. C.  
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### UREA

DuPont de Nemours & Co., E. I., Wilmington, Del.

### UREA-AMMONIA LIQUOR

DuPont de Nemours & Co., E. I., Wilmington, Del.

### VALVES

Monarch Mfg. Works, Inc., Philadelphia, Pa.  
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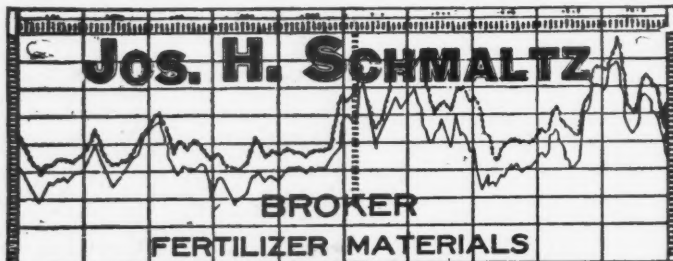
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